

AMENDMENTS TO THE CLAIMS:

Claims 1-11. (cancelled)

Claim 12. An antenna comprising:

a first substrate containing a plurality of transmitter chips, wherein each transmitter chip is comprised of a first series of phase shifters to control the scan angle and linear polarization of an RF signal, a first 90° phase shifter to control the circular polarization of an RF signal, and a first means for controlling the first series of phase shifters and the first 90° phase shifter;

a second substrate containing a plurality of transmitter chips, connected at the output of the first substrate, wherein each transmitter chip is comprised of a second series of phase shifters to control the scan angle and linear polarization of an RF signal, a second 90° phase shifter to control the circular polarization of an RF signal, and a second means for controlling the second series of phase shifters and the second 90° phase shifter; and

a balun substrate connected at the output of the second substrate containing a number of baluns that divides an RF signal into two equal signals that are 180° out of phase with each other.

Claim 13. (original) The antenna of claim 12 wherein the first substrate receives the first RF signal and the second substrate receives the second RF signal from an interconnect substrate.

Claim 14. (original) The antenna of claim 12 wherein the antenna is capable of transmitting with a single operating signal.

Claim 15. (original) The antenna of claim 12, wherein the balun substrate further comprises a number of radiator elements connected at the output of the baluns.

Claim 16. (original) The antenna of claim 15, wherein each of the radiator elements are planar square patch radiator.

Claim 17. (original) The antenna of claim 12, wherein each of the substrate is designed using MMIC technology.

Claim 18. (original) The antenna of claim 12, wherein each of the substrate is built using LTCC technology.

Claim 19. (original) The antenna of claim 12, wherein the various substrates are interconnected using a Fuzz-bottom interconnect.

Claim 20. (original) The antenna of claim 12, wherein each of the substrate is connected to a aluminum-graphite frame that provides support and heat sinking mechanism for the substrates.

Claim 21. (original) The antenna of claim 19, wherein various substrates are connected to the Fuzz-bottom interconnect using a film epoxy.

Claim 22-24. (cancelled)